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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
STEELE, JENNIFER A	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,423	VILLANUEVA ET AL.	
	Examiner	Art Unit	
	JENNIFER STEELE	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/2/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claim 1 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.** The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The limitation "wherein said chemical compound allows at least 80 percent survival of a bacterial colony" is not described in the specification. The claim describes a "product for the removal of negatively charged particles comprising a substrate having thereon a positively charged chemical". The positively charged chemical removes negatively charged particles *and* has the property of at least 80% survival of a bacterial colony. According to the specification, the bacterial colony that has 80% survival is measured in incubation agar plates. The claim is not clear that the property of bacterial survival is a result of the chemical not leaching from the product. The claim, as recited, indicates that the chemical allows for bacterial survival, however the specification teaches it is the combination of the chemical crosslinked to the substrate that produces a product that binds the bacteria to the product such that the chemical does not leach out onto a surface and kill bacteria.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claim 1-19 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wei et al (WO 00/36207).** Wei teaches polymer fiber comprising a functionally cationically charged polymer which may be an epichlorohydrin-functionalized polyamine (pg. 7, lines 9-13). Wei teaches a meltblown nonwoven web (Ex. 1, page 10). Wei teaches functionally cationically charged chemical, such as KYMEME® (page 6, lines 32-36) as taught in Applicant's specification. Wei teaches a substrate with pathogen capture results collected on the filter fabric. Wei teaches a method of producing the functionally cationically charged polymer requires preparation solution of epichlorohydrin-functionalized amine solution and dipping the substrate web into the solution and drying at a temperature of 85°C to crosslink or cure (Ex. 1, pg 10). Wei teaches the functionally cationically charged polymer is crosslinked or polymerized with the hydrophobic polymer fiber. Wei differs from the current application and does not teach the property of an 80% survival of a

bacterial colony. Wei teaches a bacterial binding product wherein the cationically treated substrate has measured particle and pathogen capture results. Wei teaches if the chemical leaches out of the substrate, the chemical will kill the bacterial in the test plates. Wei teaches a log reduction of pathogens as a result of the product substrate treated with the chemical. As Wei teaches a positively charged chemical compound on a substrate which is the same as the Applicant's structure and materials, it is reasonable to presume that the properties of Wei are the same as the properties of the current Application. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

As to claim 2, Wei teaches polymerizing the functionally cationically charged polymer within the fibrous web and this process is equated with applicant's claim 2 which states "said nonwoven web embedded with a positively charged chemical." It should be noted that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though a different process made the prior product. In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985). The burden has been

shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. In re Marosi, 218 USPQ 289,292 (Fed. Cir. 1983).

As to claim 3 and 4 and 8, Wei teaches a cationically charged chemical compound is applied to the substrate by a method of treating the fibrous filter with an aqueous solution of the chemical and applying heat to crosslink the chemical to the substrate (page 8, lines 13-22).

As to claim 5, Wei teaches an epichlorohydrin-functionalized polyamine (page 7, lines 12).

Regarding claim 9, Wei teaches a meltblown web in examples 1-4 (pages 10-12).

With respect to claim 10-12, Wei teaches the chemical compound is added to the substrate in the form of an aqueous solution where the percentage of cationic chemical compound is about 0.1% to about 2% of an aqueous solution (page 8, lines 23-31).

As to Claims 13-15, Wei is silent with respect to the property of cell colony growth and bacterial growth. Wei teaches log reduction of microorganisms. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

Regarding claim 16, the claim is drawn to statements of use and does not distinguish the claims from prior art.

With regards to claim 17, Wei teaches a product that removes pathogens or bacteria and the product of Wei is produced by a method of coating a fibrous substrate with a cationic chemical and heating at a temperature sufficient to crosslink the functional groups present in the polymer (page 10, lines 3-9). As Wei teaches a positively charged chemical compound on a substrate which is the same as the Applicant's structure and materials, it is reasonable to presume that the properties of Wei are the same as the properties of the current Application. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

3. **Claim 1-4, 6-9, 13-19 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sloane et al (US 6,607,994).** Soane teaches nanoparticle-based permanent treatments for textile including (ABST). Soane teaches the nanoparticle has a surface that includes functional groups for binding or attachment to the fibers of the textiles or other webs to be treated (ABST). Soane teaches the nanoparticle architecture allows the nanoparticles to be formulated for anti-biologic agents among other uses (col. 2, lines 31-44). Soane differs from the current application and does not teach the property of 80% survival of a bacterial colony. Soane teaches the structure and materials of the claimed invention. Soane teaches that the nanoparticles can be cationic (col. 11, lines 53) and teaches the

nanoparticles can be antimicrobial therefore it is presumed that the article of Sloane would have the properties of removing bacteria. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

Regarding claim 2-4 and 6, Soane teaches that where the controlled release is desired, the agent is embedded or entrapped within the polymeric encapsulate of the nanaparticle so that it can be released from the nanoparticle in a controlled fashion (col. 5 and 6, lines 66-67 and 1-5). Soane teaches applying cationic nanoparticles onto the web of fibers (col. 11, lines 52-55). Soane teaches a melt-extruded fiber and nonwoven web (col. 10, lines 15-38). As to claim 2, Sloane does not teach embedding in the nonwoven web, however Sloane teaches the nanoparticles are selected for the best pentration into the particular fiber and this structure is equated with claim 2. It should be noted that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though a different process made the prior product. In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to

show unobvious differences between the claimed product and the prior art product. In re Marosi, 218 USPQ 289,292 (Fed. Cir. 1983).

Regarding claim 7, Soane teaches materials or agents that are encapsulated in a polymer as nanoparticles that can be zeolites (col. 3, lines 20). Zeolites are equated with alumina oligomers as referenced by Roland in the article titled Zeolites in Ullmann's Encyclopedia of Industrial Chemisty.

With regards to claim 8, Soane teaches the nanoparticles are applied to the textile substrate with or without crosslinkers (col. 9, lines 20-31) and are heated to a process temperature for the nanoparticles to adhere to the substrate (col. 11, lines 21-38).

As to claim 9, Soane teaches the invention is directed to the fibers, yarns, fabrics which may include wovens, nonwovens, knit can be treated with the textile-reactive nanoparticles (col. 2, lines 45-50). Soane teaches the fibrous webs can be wet laid, drylaid, solvent extruded, air or gas blown, jet interlaced, hydroentangled (col. 10, lines 34-37).

As to Claims 13-15, Soane is silent with respect to the property of cell colony growth and bacterial growth. Soane teaches a textile that has a nanoparticle adhered to the textile such that the textile has antimicrobial properties. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting

the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

Regarding claim 16, the claim is drawn to statements of use and does not distinguish the claims from prior art.

With regards to claim 17, Soane teaches nanoparticle-based permanent treatments for textile including (ABST). Soane teaches the nanoparticle has a surface that includes functional groups for binding or attachment to the fibers of the textiles or other webs to be treated (ABST). Soane teaches the nanoparticle architecture allows the nanoparticles to be formulated for anti-biologic agents among other uses (col. 2, lines 31-44). Soane differs from the current application and does not teach the property of 80% survival of a bacterial colony. Soane teaches the structure and materials of the claimed invention. Soane teaches that the nanoparticles can be cationic (col. 11, lines 53) and teaches the nanoparticles can be antimicrobial therefore it is presumed that the article of Sloane would have the properties of removing bacteria. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

As to Claim 18, Soane teaches hydroentangled pulp and synthetic fibers (col. 10 lines 15-40).

As to claim 19, Soane teaches various webs as noted above that can remove bacteria and having a cationic nanoparticle treatment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

7/15/2008